



ECRB Market Monitoring Report

Gas Wholesale Markets in the Energy Community

Reporting period 2020 - Publication December 2021

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INTRODUCTION

1. About ECRB

The Energy Community Regulatory Board (ECRB) operates based on the Energy Community Treaty. As an institution of the Energy Community¹, ECRB advises the Energy Community Ministerial Council and Permanent High Level Group on details of statutory, technical and regulatory rules and makes recommendations in the case of cross-border disputes between regulators. ECRB is the independent regional voice of energy regulators in the Energy Community. ECRB's mission builds on three pillars: providing coordinated regulatory positions to energy policy debates, harmonizing regulatory rules across borders and sharing regulatory knowledge and experience. ECRB also has a number of legal responsibilities such as issuing opinions on draft certification decisions of Contracting Parties' regulatory authorities or monitoring the implementation of Network Code Regulations.²

2. Background

Market monitoring is a core element of regulatory responsibilities. Only in-depth knowledge of market performance, stakeholder activities and development trends allow regulators to create an effective market framework that balances the needs of market players and is able to promote competition, customer protection, energy efficiency, investments and security of supply at the same time. The relevance of regulatory market monitoring is not only recognized by the Energy Community *acquis communautaire* ('acquis') but is also since years a central ECRB activity.

3. Scope

The present report covers the Energy Community Contracting Parties with functioning gas markets: **Georgia, Moldova, North Macedonia, Serbia and Ukraine**. It describes the status quo of gas markets on wholesale level with the aim to identify potential barriers and discuss recommendations on potential improvements. Data presented in this report refers to year **2020**.

¹ www.energy-community.org The Energy Community comprises the EU and Albania, Bosnia and Herzegovina, North Macedonia, Georgia, Kosovo*, Moldova, Montenegro, Serbia and Ukraine. Armenia, Turkey and Norway are Observer Countries. Throughout this document the symbol * refers to the following statement: *This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Advisory Opinion on the Kosovo declaration of independence.*

² For more information on ECRB visit <https://www.energy-community.org/aboutus/institutions/ECRB.html>.

4. Methodology

Data and analysis displayed in this report is based on information provided by the regulatory authorities of the analyzed markets. Part of the information has been collected for the purpose of *Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2020* of the Agency for Cooperation of Energy Regulators (ACER).³

ANALYSIS

1. Wholesale gas market characteristics and prices

The gross inland gas consumption⁴ in the Contracting Parties changed in different ways from 2012 to 2020 in the individual markets: while in Ukraine and Bosnia and Herzegovina consumption on average decreased, it increased in the other Contracting Parties. The substantial decline in Ukrainian's gas consumption of almost 50%, started as of 2015, due to lower operation of industries in the occupied parts of the country, increased gas prices and intentional lowering of import dependence. On a year-to-year basis, from 2019 to 2020, a gas consumption increase was registered in all Contracting Parties except Bosnia and Herzegovina and Georgia.

The figures below present the gross inland gas consumption in the period 2012- 2020 – including and excluding Ukraine⁵ – as well as consumption growth rates by country.

³

https://extranet.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Market%20Monitoring%20Report%202020%20-%20Gas%20Wholesale%20Markets%20Volume.pdf

⁴ Calculated as follows: gross inland consumption = production + imports - exports + storage variations.

⁵ With a view to provide comparability having in mind the size of the Ukrainian gas market compared to those of the other analyzed markets.

Figure 1 Gross inland consumption (in TWh/year)

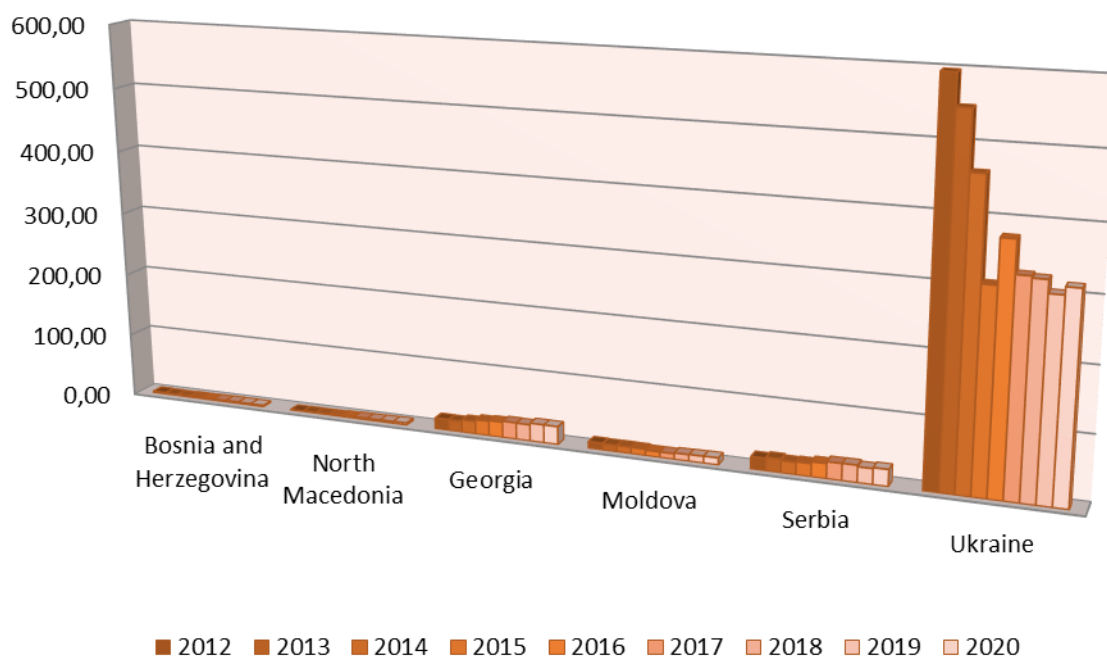


Figure 2 Gross inland gas consumption without Ukraine (in TWh/year)

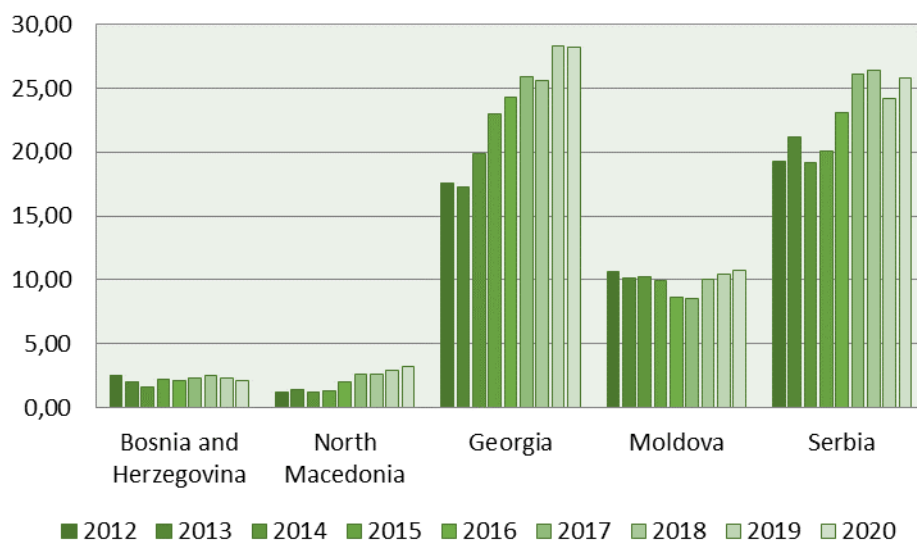


Figure 3 Gas consumption growth rates 2020/2012

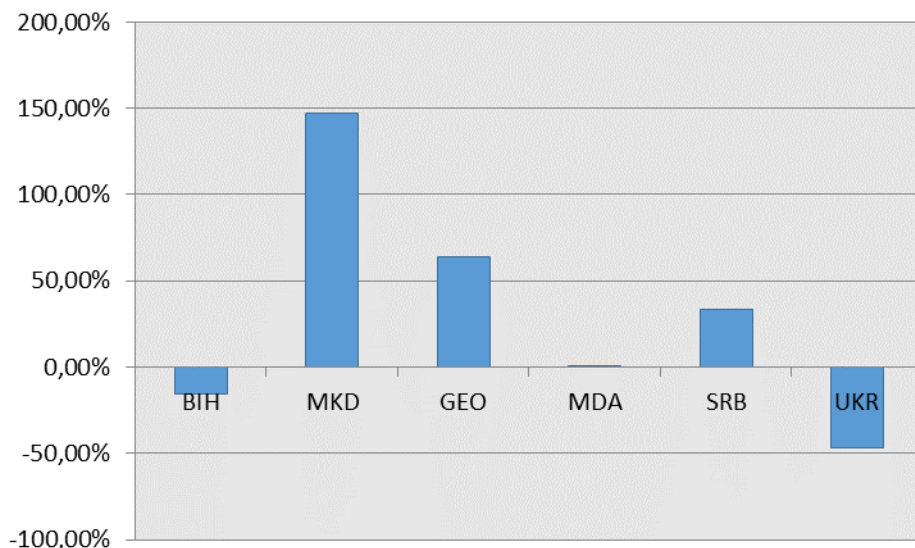
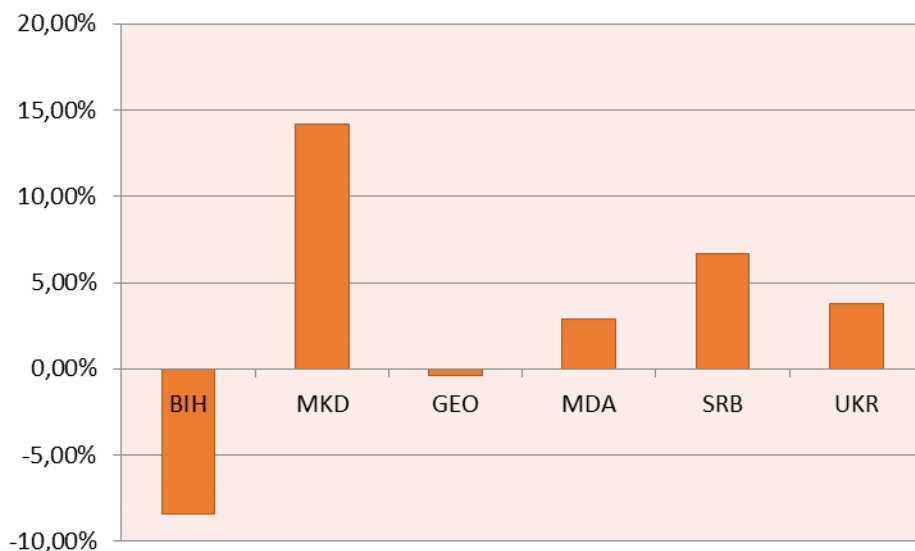


Figure 4 Gas consumption growth rates 2020/2019



Natural gas is mainly imported to the Contracting Parties whereby import dependency from Russian sources continues to prevail. In North Macedonia and Moldova import from Russian sources represented 100% of the final consumption, and in Serbia 89.4%. Georgia relies mostly on imports from Azerbaijan (in 2020, 91% of gas demand was covered by gas from Azerbaijan) and from Russia (7.9%). The share of import from Russia increased from less than 2% in 2018 to 7.9% in 2020. In Ukraine, 31% of the gas consumed in 2020 depended on import from

EU Member States while 66.3% came from indigenous production.⁶ Transit across the Ukrainian transmission system to EU Member States from Russia was done in line with the five- year agreement signed in December 2019. According to this agreement, minimum take-or-pay transit flows were set to 65 bcm in 2020 and 40 bcm per year for 2021- 2024.

The numbers of supply sources per Contracting Party are shown in the table below.

Table 1 Sources of gas supply to the Energy Community Contracting Parties and Observers

Energy Community Contracting Party	Number of supply sources
Bosnia and Herzegovina	1 (import from Russia 100%)
Georgia	4 (Georgia, Armenia 0.75%, Russia 7.9% and Azerbaijan 91%; around 0.3 % of demand was covered from domestic production)
Moldova	1 (import from Russia 100%)
North Macedonia	1 (Russia)
Serbia	2 (Serbia 10.6%, Russia 89.4%) ⁷
Ukraine	NA ⁸ (domestic production contributed to coverage of 66.3% of demand and 31% were import at interconnection points (IPs) with neighboring EU Member States) ⁹

For the countries where related information is available, average yearly prices at the borders of the importing countries as well as the average wholesale sell prices for the years 2013 to 2020 are shown in the tables below.

Table 2 Average yearly import price of gas in the Contracting Parties

Price of gas at the border of the importing country (in EUR/MWh)	2013	2014	2015	2016	2017	2018	2019	2020
Moldova	29.19	29.49	23.35	21.72	18.25	19.45	20.29	15.9
North Macedonia	41.60	40.20	27.00	17.28	20.26	25.16	23.26	18.37
Serbia	NA	NA	28.21	NA	NA	NA	NA	NA
Ukraine¹⁰	NA	NA	NA	17.47	19.92	24.89	17.8	12.48

⁶ These shares were calculated without taking into account storage withdrawals in 2020, since the NRA does not have information on the origin of stored gas.

⁷ However, one third of imported gas was bought from traders in Hungary and Czech Republic, i.e. the ultimate origin of that gas cannot be established.

⁸ The abbreviation "NA" stands for "not available" throughout the report.

⁹ The ultimate sources of natural gas imported to Ukraine on the interconnection points with neighboring EU Member States cannot be established, while the exporters obtain gas on EU gas hubs.

¹⁰ These prices include also the entry tariffs to Ukraine.

Table 3 Average yearly gas wholesale sell prices in the Contracting Parties

Average gas wholesale sell price in country (in EUR/MWh)	2013	2014	2015	2016	2017	2018	2019	2020
Moldova	34.65	31.09	30.34	20.14	30.09	26.68	23.76	21.91
North Macedonia	48.9	48.6	30	22.4	24.6	27.4	25.36	23.38
Serbia	NA	NA	32.12	22.99	24.51	28.03	28.53	23.97
Ukraine	NA	NA	NA	15.53	18.20	20.08	17.7	11.69

Wholesale price regulation is abandoned in all analyzed markets with the exception of Ukraine where prices for gas produced in state owned production companies were regulated for the purpose of protected customer groups, namely households, religious organizations and district heating in the framework of the public service obligation. This regulation was, however, abandoned in August 2020- for supply of households and religious organizations¹¹.

In 2020, Ukraine produced 19.73 bcm of gas. *Ukrgezvydobuvannya* (UGV), a 100%-owned subsidiary of *Naftogaz*, produced 13.4 bcm of gas representing 68% of Ukraine's total indigenous production. Almost¹² all marketable gas produced by UGV, namely 13.4 bcm, was purchased by *Naftogaz* at a regulated price of 11.20 EUR/MWh and further sold with some mark up, maximal level of which is regulated (1,917 %) to cover demand of households, religious organizations¹³ and district heating companies and heat and hot water production companies for households and religious organizations' needs. Gas prices and supply procedures for the protected categories (i.e. households; religious organizations; and district heating companies for the purpose of producing heat and hot water for the needs of population and religious organizations) are regulated by the Public Service Obligation (PSO) Act of the Cabinet of Ministers of Ukraine. According to this act, *Naftogaz*, *Ukrgezvydobuvannya* and *Chornomornagtogaz* were obliged to sell gas for the purpose of households and religious organizations at regulated prices until 1st August 2020 and for the purpose of district heating until 1st April 2021. The remaining 6.3 bcm were produced by private producers. Private producers of gas do not have an obligation to sell gas to *Naftogaz* for PSO reasons but they sell gas on the Ukrainian (non- regulated) market.

In Serbia, the producer *NIS* was active on the free market at both wholesale and retail level. Quantities sold at retail level in 2020 were consumed by industry consumers. In Ukraine, around 400 traders were active at non-regulated wholesale gas market.

Gas exchanges do not exist in the analyzed markets, with the exception of Ukraine, where one gas exchange operates, with still low, but from year to year increasing liquidity. Traders and suppliers active on those markets also do not buy gas on any other gas exchanges but all gas is provided via long-term and short-term bilateral supply contracts.¹⁴

¹¹ As of April 2021 also the public service obligation for the supply of district heating companies does not exist any more.

¹² Except the gas used for the technological needs of *Ukrgezvydobuvannya* during its production process.

¹³ Households, religious organizations – until August 2020

¹⁴ Long- term contracts are those with duration of more than 1 year.

The Ukrainian Energy Exchange (UEEX)¹⁵ initiated natural gas trading in 2017. In 2020, traded volumes at the Ukrainian UEEX exchange increased to 2 bcm - from just 0.3 bcm in 2019. In addition, during this period the number of market participants doubled. UEEX has launched spot market trading in December 2020.

The characteristics of the Ukrainian gas market, such as the level of gas production and consumption, USG capacities and large IPs connecting the country with several EU gas hubs, support the liquidity of its hub. Liquidity has also increased since the Ukrainian incumbent, *Naftogaz*, started actively trading at the exchange. This was strongly influenced by the elimination of the public service obligation of *Naftogaz* to provide gas supplies for household customers as of 1st August 2020.¹⁶

Market design changes related to the implementation of the EU gas network codes have also supported the development of hub trading. The most influential have been the allocation of IP capacities in line with the CAM NC and the adoption of new transmission tariffs based on certain provisions of the TAR NC. The implementation of a daily balancing regime has also contributed to an increase in market liquidity, as the network users have the opportunity to trade in order to settle their imbalances before the TSO activates balancing services.¹⁷

The **number of shippers active at interconnection points** varies substantially among the Contracting Parties/Observer Countries; concrete data is presented in the table below.

Table 4 Number of shippers at IPs in the Contracting Parties

Contracting Party/Observer	Number of shippers active at IPs
Georgia	5 (Azerbaijan- 1, Azerbaijan SCP- 2, Russia- 2)
Moldova	21
North Macedonia	2
Serbia	6 (Hungary- 3, Bosnia and Herzegovina- 3)
Ukraine	86

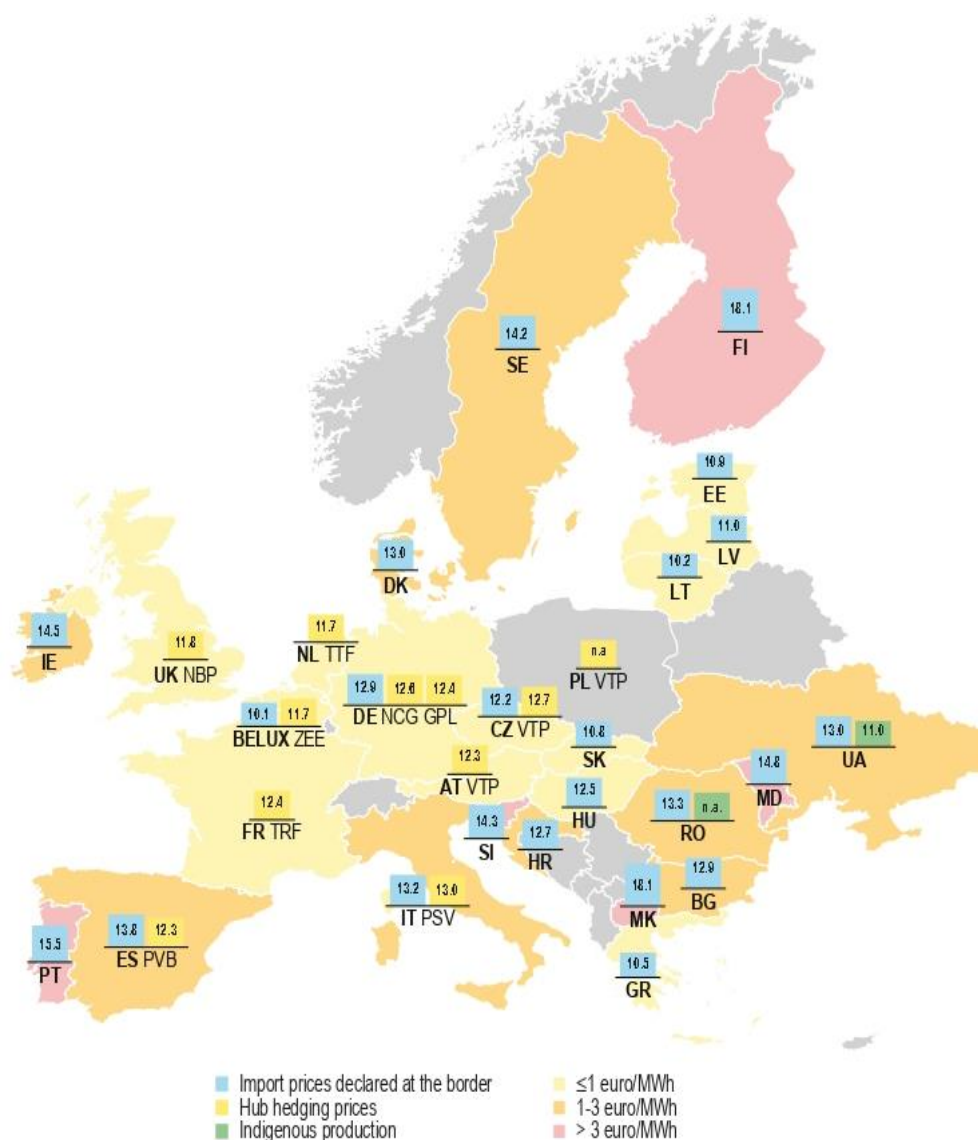
In general, underdeveloped competitive market conditions – caused by lack of diversification of supply sources on one side but also by not fully developed legislative and functional preconditions on the other side (e.g. less favorable LTCs) – contribute to **higher supply sourcing costs in the Energy Community Contracting Parties in 2020 compared to those of the EU countries**. As shown in the ACER Market Monitoring Report 2020 Gas Wholesale Volume (see Figure 5 below), supply costs in most Contracting Parties continued to be higher than in the EU Member States as a result of less favorable long term contracts and lower upstream supply competition. On the other side, prices in Ukraine became more correlated to EU gas hubs.

¹⁵ <https://www.ueex.com.ua/eng>

¹⁶ Public service obligation to provide gas for district heating remained valid until April 2021.

¹⁷ In addition to balancing services, also the tolerance levels are still in use, which to a certain extent hinders the continuous increase in liquidity. However, in 2020, the level of tolerance decreased simultaneously with the increase of small adjustment applied for the purpose of imbalance charge calculations.

Figure 5 2020 Estimated average suppliers' gas sourcing cost by EU Member States and Contracting Parties and delta with TTF hub hedging prices in EUR/MWh¹⁸



Low gas market liquidity and high wholesale prices in the Contracting Parties are certainly indicators for **poor market integration**. Efforts towards better integration of the EU and Energy Community gas markets should contribute to increased liquidity and convergence of prices.

¹⁸ ACER, 2020 MMR Gas Wholesale, July 2021: https://extranet.acer.europa.eu/official_documents/acts_of_the_agency/publication/acer%20market%20monitoring%20report%202020%20-%20gas%20wholesale%20markets%20volume.pdf

2. Market dominance

Market concentration is an important indicator for assessing the performance of wholesale markets. Therefore, ACER included the **Herfindahl-Hirschmann Index** (HHI) in the list of market health metrics in its European Gas Target Model,¹⁹ setting a threshold of ≤ 2000 above which markets are considered as concentrated. The HHI is calculated as sum of squared market shares (in %) of all different upstream companies supplying a market at import level, i.e. sourcing the gas into the country but not by the shares of the companies buying this gas in a country. The exception is Ukraine, for which the upstream concentration could not be calculated, however, according to the NRA, an index referring to a midstream concentration has been calculated (taking into account the shares of importing and producing companies). The table below summarized HHIs for Contracting Parties.

Table 5 HHI for wholesale gas markets in the Contracting Parties, calculated for shares in 2020

Contracting Party	Herfindahl- Hirschmann Index
Georgia	3,850
Moldova	10,000
North Macedonia	5,021
Serbia	8,105
Ukraine	3,576

While the presented HHI thresholds indicate upstream dominance, other indicators showing dominance on the midstream gas market are the number of companies selling at least 5% of available gas and the market share of the three biggest companies. Relevant results for the assessed markets are shown hereinafter.

¹⁹ <http://www.acer.europa.eu/Events/Presentation-of-ACER-Gas-Target-Model-/Documents/European%20Gas%20Target%20Model%20Review%20and%20Update.pdf>.

Table 6 Dominance of wholesale supply companies in gas markets of the Contracting Parties and Observers in 2020

Contracting Party	Number of companies selling at least 5% of available gas ²⁰	Shares of 3 biggest companies in the market (in %)		
		1	2	3
Georgia	3	39	29	28
Moldova	1	91.1		
North Macedonia	3	72	20	6
Serbia	1	81	3.70	2.90
Ukraine	2	58.67	7.41	4.86

Both market concentration indicators presented above show that the **gas markets of the Contracting Parties are highly concentrated**, i.e. only very limited number of companies with substantial market shares are sourcing gas into the analyzed national markets. In North Macedonia, two big gas consumers buy gas directly at the border, therefore the concentration of the main wholesaler on the market is lower.

3. Transmission tariffs and network access regimes

Tariffs for transmission network access as well as the methodologies used for their calculation significantly influence gas trade, liquidity and competition. Furthermore, they also affect wholesale market integration. Directive 2009/73²¹ and Regulation 715/2009²² therefore require that network tariffs are transparent and non-discriminatory, providing incentives for investments and interoperability of networks as well as created so not to restrict market liquidity or trade across borders of different transmission systems. The European Regulation 2017/460 establishing a network code on harmonised transmission tariff structures for gas (TAR NC), established with a view to contribute to market integration, enhance security of supply and promote the interconnection

²⁰ Available gas calculated as: available gas = gross inland consumption (production + net imports + storage variations).

²¹ Directive 2009/73/EC of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC, incorporated and adapted by Ministerial Council Decision 2011/02/MC-EnC of 6 October 2011 (https://www.energy-community.org/dam/jcr:004b3ca7-fa52-4633-875e-8ac1b2cea021/Directive_2009_73_GAS.pdf).

²² Regulation (EC) 715/2009 of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) 1775/2005, incorporated and adapted by Ministerial Council Decision 2011/02/MC-EnC of 6 October 2011 (https://www.energy-community.org/dam/jcr:d0f7d046-57cb-479a-a39a-9bce06065155/Regulation_715_2009_GAS.pdf).

between gas networks, was adopted for the Energy Community Contracting Parties in November 2018, with an implementation deadline of 28th February 2020.²³

In 2020, transmission tariffs were calculated separately for entry- exit points in Serbia and Ukraine only. In the other Contracting Parties, post- stamp methodologies were implemented.

Assessment of gas transmission costs in Europe is provided regularly in the ACER Market Monitoring Reports, for which the regulatory authorities of the Contracting Parties sent input. The results of the 2020 analysis are presented in the table below.

Table 7 Average cross- border transmission tariffs in 2020 (in EUR/MWh)

Interconnection point	Border and direction	Flow direction (TSO view)	TSO	Charge (EUR/MWh)	2019/2020 change (in %)
Horgos	HU-RS	Entry	Srbijagas	0.51	0
Zvornik	RS-BIH	Exit	Srbijagas	1.67	0
Deve Bair	BG-MKD	Entry	GAMA AD Skopje	1.99	-9.9%
VIP or physical with HU- Beregdaroc/Beregove	HU to UA	Entry	GTS of UA	1.26	-29%
VIP or physical with HU- Beregdaroc/Beregove	UA to HU	Exit	GTS of UA	2,61	-45%
VIP or physical with Slovakia- Budintse/Uzhgorod – Velke Kapusany	SK to UA	Entry	GTS of UA	1.26	-29%
VIP or physical with Slovakia- Budintse/Uzhgorod – Velke Kapusany	UA to SK	Exit	GTS of UA	2.73	-45%

²³ Some of the implementation deadlines for certain provisions of the Network Code are set differently. For more information see: Decision of the Permanent High Level Group 2018/07/PHLG-EnC adopting the TAR NC: https://www.energy-community.org/dam/jcr:fd41a351-b04c-41a7-b7a5-89da4171aa17/Regulation_2017_460_TAR_NC.pdf.

Interconnection point	Border and direction	Flow direction (TSO view)	TSO	Charge (EUR/MWh)	2019/2020 change (in %)
Virtual or physical IPs with Poland-Hermanowice, Drozdovychi, Ustylug	PL to UA	Entry	GTS of UA	1.26	-29%
Virtual or physical IPs with Poland-Hermanowice, Drozdovychi, Ustylug	UA to PL	Exit	GTS of UA	2.55	-28%
Sokhranovka	RU to UA	Entry	GTS of UA	4.52	Newly established tariff
Sudzha	RU to UA	Entry	GTS of UA	4.52	+155%
Tekove/Mediesu Aurit	RO to UA	Entry	GTS of UA	1.26	-29%
Tekove/Mediesu Aurit	UA to RO	Exit	GTS of UA	2.48	-45%
Isacea/Orlovka	RO to UA	Entry	GTS of UA	1.26	-29%
Isacea/Orlovka	UA to RO	Exit	GTS of UA	0.32	-92%
Oleksiivka	UA to MD	Exit	GTS of UA	2.74	+89
Limanskoe	MD to UA	Entry	GTS of UA	1.26	-29%
Limanskoe	UA to MD	Exit	GTS of UA	2.31	-28%
Grebenyky	UA to MD	Exit	GTS of UA	2.31	-33%
Ananyiv	UA to MD	Exit	GTS of UA	2.31	-28%

Interconnection point	Border and direction	Flow direction (TSO view)	TSO	Charge (EUR/MWh)	2019/2020 change (in %)
Kaushany	UA to MD	Exit	GTS of UA	0.32	Newly established tariff
Virtual point with Moldova	UA to MD	Exit	GTS of UA	0.16	Newly established tariff
Moldova	post stamp	Exit	Moldovatransgaz	1.16	-22
Moldova- transit			Moldovatransgaz	3.23	+108
Georgia	post stamp	Exit	GGTC	0.60	+9.9

Source: NRAs, recalculation based on ACER methodology

Gas transmission tariffs in 2020 differ a lot among the Contracting Parties, but also for different interconnection points within a country. For example, the tariff for Ukrainian virtual point to Moldova, delivering gas to both Moldovan and Ukrainian customers in the region with multiple border crossings, was only 0.16 EUR/MWh. On the other side, tariff for interconnection points between Russia and Ukraine amounted to 4.52 EUR/MWh. **In comparison to 2019, gas transmission tariffs substantially decreased in 2020 in Ukraine, for the majority of IPs. On the other side, tariffs for transit in Moldova substantially increased.** Without detailed investigation of costs included in the allowed revenue or transmission tariff structures, it is not possible to explain precisely the reasons for such differences. More clarity should have been provided with the proper implementation of TAR NC in the Contracting Parties, however none of the Contracting Parties implemented consultation, decision-making and publication requirements of the network code²⁴ so far. Nevertheless, the ECRB will publish a report on the methodologies and parameters used to determine the allowed or target revenue of transmission system operators in 2021 and a report on the application of reference price methodologies by end of August 2022.

Beside capacity tariffication, transparent and non-discriminatory **capacity allocation** harmonized on interconnection points between TSOs is another important prerequisite for having liquid and competitive wholesale gas markets. Therefore, Regulation (EU) 2017/459 ('CAM NC')²⁵ requires harmonized capacity allocation procedures at interconnection points via market-based auctions at centralized booking platforms. The deadline for implementing the CAM NC in the Contracting Parties expired end of February 2020, whereby the first annual yearly auctions were supposed to be organized as of July 2020 in line with the ENTSO auction calendar.

²⁴ Chapters VII and VIII of the TAR NC.

²⁵ Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013 was incorporated into the Energy Community *acquis communautaire* by Decision 2018/06PHLG-EnC of the Permanent High Level Group (https://www.energy-community.org/dam/jcr:0898e7e5-b38a-48fc-966f-b60a856c99e5/Regulation_2017_459_CAM.pdf).

In Ukraine, the transmission system operator certified as of 1st January 2020, indeed started organizing auctions of firm and interruptible entry capacity at interconnection points with neighboring EU Member States in July 2020. At the Hungarian border the capacities were offered at the RBP booking platform, while at the Polish border at the GSA booking platform and all these cross-border capacities are now managed as virtual interconnection points.²⁶ All products offered relate to unbundled capacity. Most bookings relate to monthly firm or interruptible capacity so far, whereas products for longer duration have been allocated only in few cases.

In this context, attention has to be drawn to the **legal shortcoming** of binding applicability of the CAM NC on interconnection points between Contracting Parties and EU Member States. In legal terms, the CAM NC is only applicable on interconnection points between EU Member States on the one hand,²⁷ and on interconnection points between Contracting Parties on the other hand. According to both the EU and the Energy Community version of the CAM NC the code may also be applied on interconnection points with third countries, i.e. a Contracting Party from an EU Member State perspective and *vice versa* – subject to a related decision of the relevant national energy regulator. By signing a related declaration, the regulators of Albania, Bulgaria, Greece, Hungary, Moldova, Poland, Romania and Ukraine expressed commitment to introduce such a possibility. Still, a stable and reliable common and reciprocal legal basis for harmonisation of capacity allocation across Europe remains the ultimate target that would bring benefits for gas trade and market development.

In the Contracting Parties, there are two **dedicated transit pipelines** with particular conditions. These are the Ananiev – Tiraspol – Izmail (ATI) Pipeline in Moldova and a section of the South Caucasus Pipeline (or Baku - Tbilisi –Erzurum pipeline) in Georgia, which is a transit pipeline that is operated by *BP*, not the Georgian TSO. Through one interconnection point, the South Caucasus Pipeline is linked to the Georgian transmission system.

Long- term contracts for gas transit exist in Ukraine and Moldova and they expired at the end of 2019. At the end of 2019, Ukraine and Russia signed a five-year agreement setting minimum take-or-pay transit flows across the Ukrainian network: 65 bcm/year for 2020 and 40 bcm/year for 2021-2024. On the other side, Moldova and Russia concluded a gas transit agreement for the period of one year. Gas is also transited via the Serbian transmission system to Bosnia and Herzegovina - part of the quantities delivered to Bosnia and Herzegovina are subject to tariffication rules under the Third Energy Package, the remaining quantities are still delivered under a long- term contract.

According to applicable national legislation (i.e. national transmission network codes) yearly, quarterly, monthly and daily **capacity products** may be offered by the transmission system operators of the Contracting Parties. In practice, however, transmission system operators allocate almost exclusively yearly capacities, with the exception of Serbia and Ukraine. As mentioned above, in Ukraine mostly monthly capacity- interruptible and firm - was sold in 2020 and in Serbia monthly firm and interruptible and daily firm capacity products were offered in 2020.

In Serbia, the network code envisages allocation of yearly, monthly and daily capacities. The principles for capacity allocation are as follows:

- In case the sum of all acquired capacities for entry/exit for the respective capacity product is less or equal to the capacity to be allocated, TSO accepts all requests and allocates requested capacities;

²⁶ Between Ukraine and Hungary, merging the previous separated IPs of Beregovo and Beregdaróc and in the case of the Polish-Ukrainian border, merging Hermanowize and Drozdowicze.

²⁷ EU version of the CAM NC.

- In case the sum of all acquired capacities for entry/exit for the respective capacity product is higher than the capacity to be allocated, TSO allocates capacities proportionally to the capacities requested

Allocation of capacities according to the applicable network code was not performed in 2020 in Serbia. Furthermore, the interconnection point on the border with Hungary (Horgos), through which all gas is imported to Serbia, was excluded from capacity offers in 2017, 2018, 2019 and 2020, therefore foreclosing gas wholesale market in the country.²⁸

4. Balancing of transmission networks

Market based balancing rules, which impose balancing responsibilities on network users, foster liquidity and contribute to more competition in the gas markets. Their implementation is required by Regulation 715/2009 but also further specified by Regulation (EU) 312/2014 establishing a network code on gas balancing of transmission networks ('BAL NC'). The BAL NC was adopted for the Contracting Parties in December 2019, setting an implementation deadline of December 2020.²⁹

In 2020, only Ukraine started working towards BAL NC implementation.³⁰ In Moldova, North Macedonia and Serbia, provision of information on the imbalance status as the basic precondition for BAL NC application has been introduced. In Serbia, while transposition of the BAL NC is underway, invoicing of imbalances started in 2020 according to the existing network code. Implementation of balancing services is still the prevailing balancing tool, however this has not been elaborated in annual reports of the transmission system operators as required by Article 46 of the BAL NC. Consequently, none of the regulatory authorities took and published a motivated decision on implementation of interim measures. In Bosnia and Herzegovina and Georgia, BAL NC implementation has not started yet. Details on the balancing regimes in the Contracting Parties are presented in Table 8 below.

²⁸ The lack of third party access at the interconnection point Horgos is subject to an infringement case of the Energy Community Secretariat.

²⁹ Decision [2019/01/PHLG-EnC](#).

³⁰ BAL NC implementation was in place in 2019.

Table 8 Implementation of the BAL NC in the Energy Community Contracting Parties

	Moldova	North Macedonia	Serbia	Ukraine
Are the network users informed about their imbalances?	yes	yes	yes	Yes
Is there a trading platform for procurement of short-term standardised products?	no	no	no	Yes
Does the TSO procure short-term standardised products on the trading platform?	no	no	no	No
Is there a daily cashout regime in place?	no	no	no	No (daily balancing regime, but at the end of a month all positive and negative imbalances value is sum up and shippers are invoiced for daily imbalances. Financial security should be provided on daily basis)
How is the TSO's neutrality ensured?	n.a.			Between March 2020 and end of August 2021, the neutrality charge is calculated every month by the TSO and published on its web-site for informative purposes to monitor and to find out any shortcomings of the approach to neutrality charge calculation.

	Moldova	North Macedonia	Serbia	Ukraine
Are the interim measures used? If yes, please provide below which measure	Yes, balancing services	no		Yes, balancing services and tolerance
Is there an interim imbalance charge in use?	yes	no		Costs of balancing services and volume of balancing services provided to the TSO (in day D-1) are taken into the imbalance charge calculation (for the day D)
Are tolerance levels in use?			Yes, there are three levels of imbalance. The first level of imbalance is a sum of user`s entry and exit imbalance tolerance- it is 0.2% of daily entry quantities and 4% at exit points in summer months and 2% in winter months. The second level of imbalance is between the first level and 10% of user`s daily entry quantities. The third level is imbalance higher than 10%.	Yes. Until the end of August 2020, the level of tolerance was 10%. Since September 2020, the level of tolerance is 3%, also tolerance and small adjustment became differentiated. If imbalance is within 3-5%, small adjustment will be 10%, and for imbalances higher than 5%, small adjustment will be 20%.
Was the annual report on interim measures (Art.46 of BAL NC) prepared by the TSO(s)	no	no	no	no
Did the NRA publish a motivated decision on implementation of interim measures (Art.46 of BAL NC)?	no	no	no	No

	Moldova	North Macedonia	Serbia	Ukraine
Did the NRA allow use of transitional measures in line with Art.52 of BAL NC)?	n.a.	no	no	no

5. Interoperability

Proper implementation of the network code on interoperability and data exchange ('INT NC') is also crucial for the integration of the gas markets of the Contracting Parties, both among themselves and with neighbouring EU Member States. Regulation 2015/703 was incorporated into the Energy Community *acquis communautaire* by Decision 2018/02/PHLG-EnC of the Energy Community Permanent High Level Group of 12 January 2018, which set a deadline of 1 October 2018 for the transposition and implementation of the INT NC.

Despite the lack of binding applicability of the INT NC yet at the IPs between Contracting Parties and EU Member States, several voluntary interconnection agreements have been implemented between Ukraine and Serbia and its neighbouring EU Member States. The interconnection agreements are to a great extent in line with the INT NC provisions, even if some specific aspects related to gas quality monitoring and data exchange have not been implemented fully yet. More details and relevant recommendations on INT NC implementation are available in the Energy Community Secretariat's *Report on implementation of chapters II to V of Regulation (EU) 703/2015 establishing a network code on interoperability and data exchange rules in the Energy Community*.³¹

6. Transparency

For open, fair and well- functioning gas wholesale markets, transparency of all natural gas undertakings and of the legal and regulatory frameworks is crucial. ECRB regularly performs surveys of the factual level of compliance with the transparency requirements of Directive (EU) 73/2009 and of Regulation (EU) 715/2009.

In general, Serbia and Ukraine are the front runners in terms of compliance with the legislation and Annex I of 715/2009 Regulation. However, there is still plenty of room for increasing transparency in practice. Limited progress in this respect has been achieved in majority of the Contracting Parties during the last year.

³¹ https://www.energy-community.org/dam/jcr:16a64736-89cf-4470-a137-05b9912aea50/ECS_IO_%20NC_implementation_update_052020.pdf

SUMMARY AND CONCLUSIONS

The **gas demand** in the Contracting Parties changed in different ways from 2012 to 2020 in the individual markets: while in Ukraine and Bosnia and Herzegovina consumption on average decreased, it increased in the other Contracting Parties. On a year-to-year basis, from 2019 to 2020, gas consumption increased in all Contracting Parties except Bosnia and Herzegovina.

Natural gas is mainly imported in the analyzed markets. In North Macedonia and Moldova import from Russian sources represented 100% of the final consumption and in Serbia 89.4%. Georgia relies mostly on imports from Azerbaijan (91% of gas demand was covered by gas from Azerbaijan) and 7% from Russia. In Ukraine, 31% of the gas consumed in 2020 depended on import from EU Member States while the remaining volumes came from indigenous production.

Wholesale price regulation is abandoned in all analyzed markets with the exception of Ukraine where prices for gas produced in state owned production companies were regulated for the purpose of protected customer groups- households, religious organizations and district heating, in the framework of the public service obligation. This regulation was however abandoned in August 2020 for supply to households and religious organizations.

Gas exchanges do not exist in the analyzed markets, with the exception of Ukraine, where one gas exchange operates, with still low, but from year to year increasing liquidity. Traders and suppliers active on those markets also do not buy gas on any other gas exchanges but all gas is provided via long-term and short-term bilateral supply contracts. In general, underdeveloped competitive market conditions contributed to **higher supply sourcing costs** in the Energy Community Contracting Parties in 2020 compared to those of the EU countries.

Low gas market liquidity and high wholesale prices in most of the Contracting Parties are indicators of **poor market integration**. Efforts towards better integration of the EU and Energy Community gas markets should contribute to increased liquidity and convergence of prices. In 2020, prices in Ukraine became more correlated to EU gas hubs.

Gas markets of the Contracting Parties are **highly concentrated**. Only very limited number of companies with substantial market shares are sourcing gas to the analyzed national markets.

In 2020, **transmission tariffs** were calculated separately for entry- exit points in Serbia and Ukraine only. In the other Contracting Parties, post- stamp methodologies were implemented. Gas transmission tariffs in 2020 differ a lot among the Contracting Parties, but also for different interconnection points within a country. For example, the tariff for Ukrainian virtual point to Moldova, delivering gas to both Moldovan and Ukrainian customers in the region with multiple border crossings, was only 0.16 EUR/MWh. On the other side, tariff for interconnection points between Russia and Ukraine amounted to 4.52 EUR/MWh. **In comparison to 2019, gas transmission tariffs substantially decreased in 2020 in Ukraine and increased for transit in Moldova.**

In the Contracting Parties there are two **dedicated transit pipelines** with particular conditions. These are the Ananiev – Tiraspol – Izmail (ATI) Pipeline in Moldova and a section of the South Caucasus Pipeline (or Baku - Tbilisi –Erzurum pipeline) in Georgia. **Long- term contracts for gas transit** exist in Ukraine and Moldova. At the end of 2019, Ukraine and Russia had signed a five-year transit agreement. Moldova and Russia concluded a gas

transit agreement for the period of one year. Gas is also transited via the Serbian transmission system to Bosnia and Herzegovina, however partly under a regulatory regime.

In **Ukraine**, the transmission system operator certified as of 1st January 2020 **started organizing auctions of firm and interruptible entry capacity at interconnection points with neighboring EU Member States in July 2020**. At the Hungarian border the capacities are offered at the RBP booking platform, while at the Polish border at the GSA booking platform and all these cross-border capacities are now managed as virtual interconnection points. All the products offered relate to unbundled capacity. Most bookings relate to monthly firm or interruptible capacity so far, whereas products for longer duration have been allocated only in few cases. **In other Contracting Parties, the CAM NC was not applied yet.**

In 2020, only in Ukraine there were some positive steps towards **BAL NC implementation**. In Moldova and North Macedonia, provision of information on imbalance status, as the basic precondition for BAL NC application, has been introduced, while in Serbia, beside provision of information on imbalance status also invoicing of imbalances has started. Implementation of balancing services is still the prevailing balancing tool.

In terms of **transparency** of processes related to gas transmission, the Contracting Parties show progress over the several last years, as shown in related ECRB reports. However, there is still plenty of room for increasing transparency in practice.

The ECRB invites all gas market stakeholders in the Contracting Parties to **increase efforts towards full implementation of the gas network codes** as a pre-condition for enhancing market integration and cross-border trade with the EU and among themselves. The responsibility of regulators to pro-actively design their gas markets and make use of their enforcement powers to foster liquidity, transparency and ensure compliance with the legislative and regulatory regime is also highlighted.

ECRB repeats its constant plea for a stable and reliable common and reciprocal legal basis for the application of gas network codes at the interconnection points between Contracting Parties and Member States for the benefit of gas trade, market integration and market development.

Finally, CRB highlights the need to provide flexibility to adapt to evolving market circumstances i.e. be fit for decarbonisation and the role of gas in it. The following editions of the market monitoring reports shall in particular address the role of gas in decarbonisation agenda of the Contracting Parties and identify the relevant changes in regulatory frameworks.